

Bull. Natn. Sci. Mus., Tokyo, Ser. A, 25(4), pp. 269–289, December 22, 1999

## The Trechinae (Coleoptera, Carabidae) from Northern Vietnam

### III. Genus *Agonotrechus*<sup>1)</sup>

Shun-Ichi Uéno

Department of Zoology, National Science Museum,  
3-23-1 Hyakunin-chō, Shinjuku, Tokyo, 169-0073 Japan

**Abstract** The Vietnamese species of the trechine genus *Agonotrechus* are dealt with. Of the five species hitherto found, mostly on the Hoang Lien Son mountain range, only one large species, *A. tonkinensis* Jedlička, was previously described. It is carefully redescribed, since its original description is not satisfactory and appeared in a paper rather difficult to obtain. The other four species are newly described in this paper under the names *A. campanulatus*, *A. nomurai*, *A. amplicollis* and *A. vina*. Their affinities are discussed and the mode of their occurrence is also recorded. A key is given to the Vietnamese species of *Agonotrechus*.

**Key words:** Coleoptera, Trechinae, *Agonotrechus*, redescription, new species, Vietnam.

The genus *Agonotrechus* is an assemblage of archaic trechine beetles belonging to the tribe Trechini, and mainly distributed in South Asia, from Taiwan in the east to the Himalayas in the west. Its occurrence in China was expected for a long time, but none were recorded when I dealt with the genus in 1986. Since then, five species of *Agonotrechus* have been discovered in Sichuan and Yunnan, Southwest China (cf. Deuve, 1989, p. 317, 1992, p. 172, and 1995, pp. 10–11; Uéno, 1998, pp. 62–65, and 1999, p. 215), and our expectation was amply fulfilled.

In Vietnam, a species of *Agonotrechus* was recorded by Jedlička (1939, p. 1) from Chapa (= Sa Pa) under the name of *A. tonkinensis*, but the original description is not only unsatisfactory but also rather difficult to obtain, as it was published in a private publication. To make the matter worse, the present type depository of this species has not been found out until now in spite of my extensive searches. According to Jedlička's account, it is unusually large (6.5 mm in the length of body) for a member of the genus, which leads us to consider that his species may not be a direct relative of *A. andrewesi* Jeannel from the eastern Himalayas, though he commented that it was "dem Ag. *Andrewesi* Jean. sehr nahe stehend." It is for this reason that the species was sought with particular attention during our expeditions to northern Vietnam, above all in the vicinities of Sa Pa, its type locality.

<sup>1)</sup> This study is supported by the Grants-in-aid Nos. 06041116 and 09041167 for Field Research of the Monbusho International Scientific Research Program, Japan.

However, it was not easy to collect new material of this striking species. The town of Sa Pa was developed into a scenic resort, and all the forests in the surroundings were felled for building small hotels, restaurants, souvenir shops, and houses of local people flowing into the town from nearby villages. The land outside the town was so extensively cultivated, that we had to go to the northern part of the Hoang Lien Son Mountains to the northwest of the town for finding good natural forests in which such highly hygrophilous trechines as *Agonotrechus* might survive. I believed then that *A. tonkinensis* should have occurred anywhere in moist shaded places in the Sa Pa area at an altitude of about 1,500 m, since it seemed fully winged and capable of spreading its range by flying, a supposition that was later proved only partly true.

With the progress of our researches, it has become apparent that the members of *Agonotrechus* are extremely rare, not only in the Sa Pa area but in any part of northern Vietnam. A single specimen of the genus was first obtained by Nishikawa, who participated in the first expedition made in 1994, near the pass of the Hoang Lien Son Mountains to the north of Mt. Phang Si Pang, but it was specifically different from *A. tonkinensis* even at the first glance. A pair of the specimens of another species were collected by myself in the next spring at the other side of a branch ridge, but they proved to belong to a second new species. Participating in the third expedition made in that autumn, Nomura found a specimen of *Agonotrechus* at about the same place as the second new species had been discovered five months earlier, but it was found out not only to be a third new species but to belong to another species-group. At last in the autumn of 1997, a specimen of *Agonotrechus*, which was doubtless identified with *A. tonkinensis*, came flying to a light trap and was caught by Nomura at a spot only 50 m or so distant from the 1994 station. These five are all the specimens of *Agonotrechus* that we were able to collect in the Sa Pa area by seven expeditions from 1994 to 1999, since none of its members appeared after 1997 in spite of our arduous searches, although a close relative of the second new species was discovered in a small rain forest about 208 km distant to the southeast from Sa Pa.

What is most surprising is that four species belonging to three different lineages of *Agonotrechus* occur in a very small part of the Sa Pa area, and that each two of them are sympatric within very limited places though two sympatric species seem allopatric from the other two. In other words, two of the four species were found only at a spot on the southeastern side of the branch ridge, and the other two in a limited place on the northeastern side separated from the former by a distance of only 3 km in a bee-line. I cannot find any convincing explanation why such a segregation has taken place between them, particularly in view that all the four are fully winged. Since similar allopatry is also found in such apterous forms of trechine beetles as *Epaphiopsis* (Uéno, unpubl.), the branch ridge of the Hoang Lien Sons may have formed a barrier against the dispersal of trechines for some unknown reasons.

I am going to take up the *Agonotrechus* thus obtained in the third part of this series of papers, though the material available is not at all satisfactory as yet. Two of the

five species have been known from single females in somewhat imperfect state of preservation, and another from a single male. However, to introduce them into science seems important in various respects, taxonomical, phylogenetical and zoogeographical, especially so since it may not be possible to obtain additional specimens in near future. The abbreviations used herein are the same as those explained in previous papers of mine.

Before going into further details, I wish to express my heartfelt thanks to all the Japanese and Vietnamese members of the entomological expeditions 1994–1999, above all to Drs. Masataka Satô, Yoshiaki Nishikawa, Shûhei Nomura, Akiko Saito and Toshio Kishimoto who always helped me in field investigations.

### Key to the Vietnamese Species of *Agonotrechus*

- 1 (6) Elytral stria 3 with two setiferous dorsal pores; preapical pore absent.
- 2 (5) Prothorax much smaller, less than three-fifths as wide as elytra, transverse campanulate or subcampanulate, widest at about apical two-fifths and wider at base; head more than three-fourths as wide as prothorax; elytra widest at about middle and with broader apical parts.
  - 3 (4) Head wider, with seemingly longer postocular part and neck; eyes smaller but more prominent; genae more oblique; pronotal sides feebly arcuate in front and more strongly so near the widest part, with the postangular parts less widely reflexed; aedeagus much larger and more elongate, about one-fifth as long as elytra; length 4.70–4.90 mm ..... *A. campanulatus* S. Uéno, sp. nov.
  - 4 (3) Head narrower, with seemingly shorter postocular part and neck; eyes larger but less prominent; genae less oblique; pronotal sides more widely and evenly arcuate before the middle, with the postangular parts more widely reflexed; aedeagus much smaller and shorter, only a little less than one-sixth as long as elytra; length 4.50 mm ..... *A. nomurai* S. Uéno, sp. nov.
  - 5 (2) Prothorax much larger, five-sevenths as wide as elytra, barrel-shaped, widest at the middle and narrower at base; head about two-thirds as wide as prothorax; elytra widest at three-tenths from bases and with narrower apical parts; length 4.80 mm ..... *A. amplicollis* S. Uéno, sp. nov.
  - 6 (1) Elytral stria 3 with a single setiferous dorsal pore near base; preapical pore present.
  - 7 (8) Smaller species less than 5 mm in body length; prothorax transverse subcordate, with the sides narrowly bordered before the middle and hardly sinuate before hind angles; elytral striae shallower at the side than on the disc, stria 7 and anterior part of stria 8 fragmentary, though indicated by entire rows of punctures; elytral intervals completely flat at the side; length 4.95 mm ..... *A. vina* S. Uéno, sp. nov.

8 (7) Larger species more than 6 mm in body length; prothorax transverse subcampanulate, with the sides widely explanate and reflexed and slightly sinuate at about basal sixth; elytral striae deeply impressed throughout, somewhat deeper at the side than on the disc; elytral interval 7 convex throughout; length 7.00 mm ..... *A. tonkinensis* Jedlička, 1939.

***Agonotrechus campanulatus* S. Uéno, sp. nov.**

(Figs. 1–3)

Length: 4.70–4.90 mm (from apical margin of clypeus to apices of elytra).

Distinguished at first sight from all the previously described species of the genus by the campanulate prothorax and the absence of the preapical pore on its elytra.

Relatively small species with small fore body and large elytra; inner wings fully developed. Colour reddish brown to dark reddish brown, shiny, infuscated at least in lateral and apical parts of elytra (holotype) or also in interocular area and pronotal disc (allotype); elytra very faintly iridescent; palpi, antennae, venter of hind body, and legs reddish brown, more or less lighter than dorsum.

Head small, about 1.4 times as wide as long, widest a little behind middle, and almost equally narrowed in front and behind, though the posterior part behind eyes is fairly long, with large protrudent eyes and relatively narrow neck; dorsum depressed, with gently convex frons and supraorbital areas, the latter bearing two pair of supraorbital setae lying on subparallel lines and small foveoles at the roots of anterior supraorbital setae; frontal furrows deeply impressed in front, not angulate at middle, gently divergent anteriad, and widely so posteriad towards neck constriction; microsculpture mostly consisting of fine transverse lines but evanescent at the anterior part of vertex; eyes well convex, their contours continuing posteriorly to neck constriction through genae, which are one-fifth to one-fourth as long as eyes, rather oblique and not convex; neck constriction distinct at the sides; labrum transverse, with the apical margin either straight at middle or very slightly bisinuate; mandibles fairly slender though stout at the basal parts, briefly hooked at the acute apices; mental tooth porrect and simple, submentum sexsetose; palpi short, with penultimate segments moderately dilated towards apices; antennae short, reaching basal three-tenths of elytra in ♂, extending a little beyond basal fourth of elytra in ♀, segment 2 about six-sevenths as long as 3, which is subequal in length to 4, 5 or 6, segments 7–10 subequal in length to one another, each cylindrical and a little less than three times as long as wide, terminal segment the longest though obviously narrower than scape.

Pronotum transverse campanulate, wider than head, obviously wider than long, widest at about three-fifths from base, and much more strongly contracted towards apex than towards base; PW/HW 1.25 in both ♂ holotype and ♀ allotype, PW/PL 1.37 in ♂, 1.31 in ♀, PW/PA 1.62 in ♂, 1.65 in ♀, PW/PB 1.08 in both ♂ and ♀; sides feebly arcuate in front, rather strongly so near the widest part, either straight or very

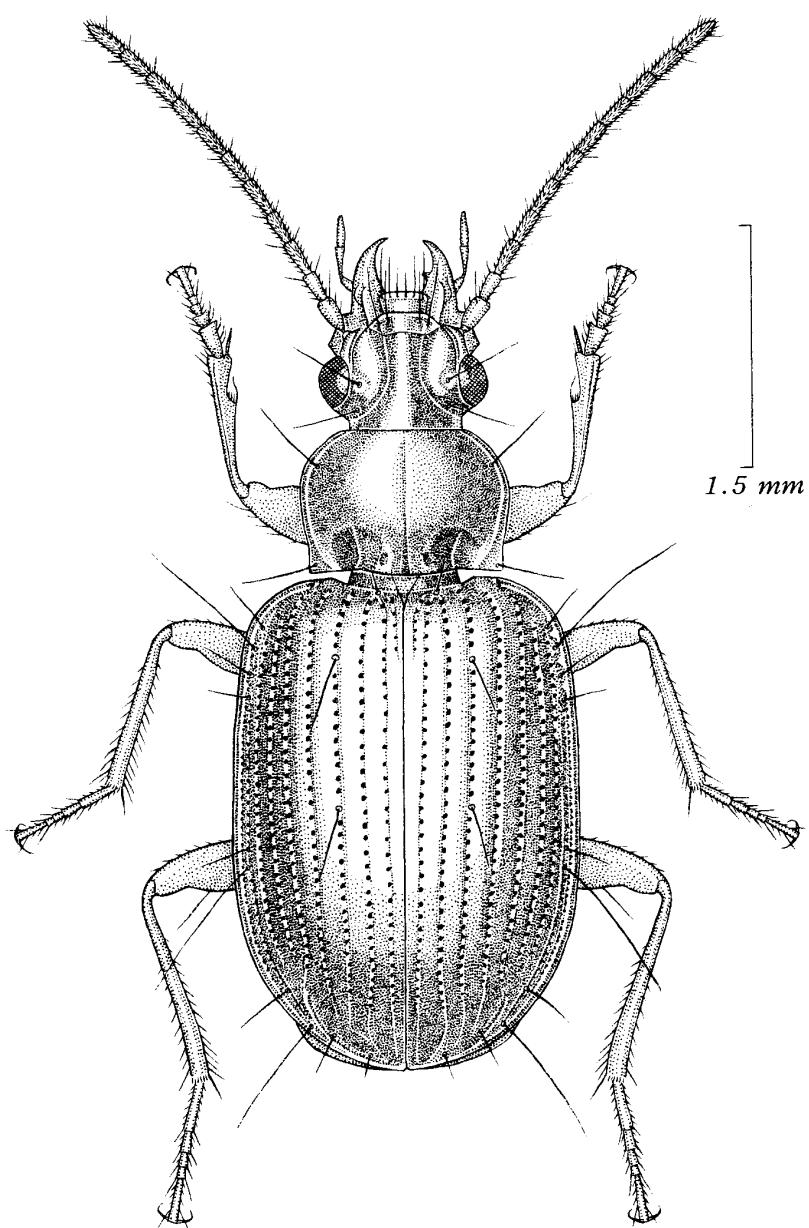


Fig. 1. *Agonotrechus campanulatus* S. Uéno, sp. nov., ♂, from the Deo O Quy Ho in the Sa Pa area.

feebly arcuate behind middle, and very slightly sinuate before hind angles; side borders very narrow before the widest part, posteriorly widened and reflexed behind there, and forming widely explanate and reflexed postangular parts; apex either slightly arcuate or nearly straight, much narrower than base, PB/PA 1.50 in ♂, 1.69 in ♀, with front angles obtuse and not advanced though distinct; base either straight or slightly bisinuate, with rectangular hind angles; dorsum convex, steeply declivous at the antero-lateral parts, median line deeply impressed though not reaching apex; microsculpture composed of fine transverse lines partially forming irregularly trans-

verse meshes, though obliterated here and there; apical transverse impression obsolete; basal transverse impression mal-defined being included in basal foveae, which are large, deep and smooth, a distinct foveole present on each side of median line on the site of basal transverse impression; basal area narrow and smooth.

Elytra subovate though nearly parallel-sided in proximal two-fifths, much wider than prothorax, widest at about middle, and regularly narrowed towards apices; EW/PW 1.68 in ♂, 1.69 in ♀, EL/PL 3.33 in ♂, 3.20 in ♀, EL/EW 1.45 in both ♂ and ♀; shoulders distinct though rounded, with prehumeral borders either perpendicular to the mid-line or somewhat recurved; sides narrowly bordered throughout, nearly straight behind shoulders, gently arcuate behind middle, and rather narrowly and almost conjointly rounded at apices, each with a very slight preapical emargination; dorsum convex though lightly depressed in proximal three-fifths, steeply declivous at the basal and particularly lateral parts, but rather gently so at the apical part; microsculpture mostly evanescent, though consisting of fine transverse lines; striae entire, deeply impressed throughout and rather coarsely punctate, stria 2 not forming apical anastomosis with 3 but outwardly arcuate in apical portion, 3 and 4 sometimes anastomosing at apices, 4 and 5 inwardly curved and deepened near base, 6 obsolete on basal carina formed by the basal part of interval 6 and not extending to basal border, 7 and proximal half of 8 sometimes fragmentary but always indicated by complete rows of coarse punctures, apical half of 8 deeply impressed though rather finely punctate; scutellar striole clearly impressed, fairly long and vaguely punctate; apical striole deep and moderately curved, anteriorly continuing to stria 5; intervals gently convex on the disc, less so at the side, intervals 5 and 6 convex throughout, the latter forming an obtuse basal carina curved inwards at the basal portion, interval 1 narrowed in apical third, apical carina prominent; stria 3 with two setiferous dorsal pores at 1/8–1/7 and 3/7–4/9 from base, respectively; preapical pore absent; marginal umbilicate pores regular.

Ventral surface smooth; all the setae on abdominal sternites normal. Legs rather short but not so stout; protibiae straight, moderately dilated towards apices; tarsi short but thin, tarsomere 1 slightly longer than tarsomeres 2–3 together in mesotarsus, slightly shorter than tarsomeres 2–4 together in metatarsus; in ♂, protarsomeres 1 and 2 rather widely dilated and inwardly denticulate at the apices.

Male genital organ very small and lightly sclerotized. Aedeagus one-fifth as long as elytra, compressed, gradually dilated towards apical third which is the highest, only feebly arcuate before middle but moderately so behind, particularly before apex, which is widely rounded; apical part large, with very short apical lobe; basal part small but fairly elongate, gently curved ventrad and hardly emarginate at the sides of basal orifice; sagittal aileron fairly large and protrudent; ventral margin widely emarginate in profile. Inner sac armed with a broad spatulate copulatory piece about one-third as long as aedeagus, the apex of which is produced into a short spiniform process; surface of the sclerite largely covered with scales. Styles rather

straight, left style being a little longer than the right, each bearing three long setae at the apex.

*Type series.* Holotype: ♂, allotype: ♀, 16-V-1995, S. Uéno leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Deo O Quy Ho, 1,750 m in altitude, in Sa Pa of Lao Cai Province, northern Vietnam.

*Notes.* This and the following two species are peculiar in the absence of the preapical pore on the elytra, and seem to form a species-group restricted to northern Vietnam. It will be called the group of *A. campanulatus*, and is characterized, beside the above peculiarity, by the constant presence of two setiferous dorsal pores on the 3rd elytral stria. Within the species-group, *A. campanulatus* is remarkable in the unique modification of external striae and intervals of the elytra, and is comparable in this respect to *A. tonkinensis*, in which the modification is more pronounced as will be described on later pages.

The pair of the type specimens of the present species were obtained from beneath a heap of wet dead leaves and twigs in the side ditch of the rugged road descending from the village of O Quy Ho to Ban Khoang on the eastern slope of the Hoang Lien Son Mountains. The particular spot where the trechines were discovered is not far from a ford of a narrow stream and is shaded by deciduous broadleaved trees. The two specimens were sifted out at the same time when a wet litter sample rich in decayed twigs and chips was examined. They were fairly active when exposed but did not try to take wing. Two other trechine species, one alate and the other apterous, were also collected at the same place, but they did not occur in such a wet micro-habitat as that of *A. campanulatus*.

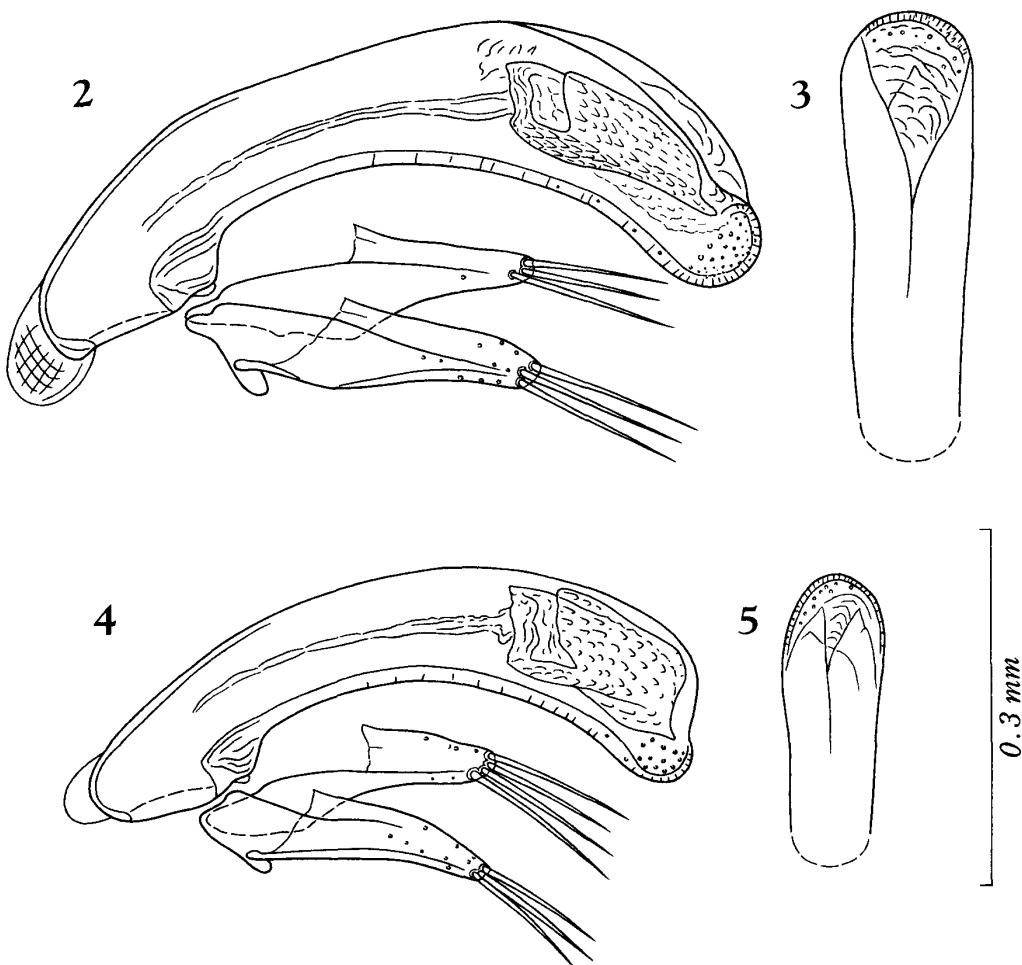
*Agonotrechus nomurai* S. Uéno, sp. nov.

(Figs. 4-5)

Length: 4.50 mm (from apical margin of clypeus to apices of elyta).

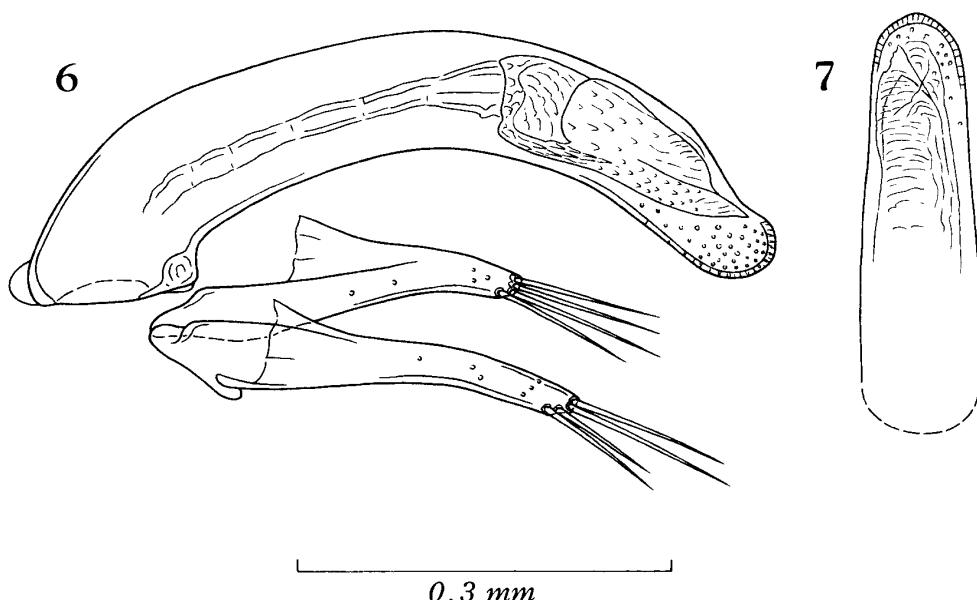
Closely similar to *A. campanulatus*, but the head is smaller with relatively short posterior part behind eyes and with larger but less prominent eyes and less oblique genae, the pronotum is a little narrower at the apex and more widely and evenly rounded at the sides before the middle, the 6th elytral interval is less distinctly convex, and the 7th stria is shallower and more sparsely punctate. Markedly different from *A. campanulatus* in the configuration of male genitalia, above all of aedeagus.

Somewhat smaller than *A. campanulatus*, of the similar coloration as in the latter. Head narrower than in *A. campanulatus* though seemingly larger because of larger and less protrudent eyes; genae less oblique, about one-fifth as long as eyes; posterior part behind eyes seemingly shorter than in *A. campanulatus*; antennae reaching basal three-tenths of elytra. Pronotum transverse subcampanulate, much wider than



Figs. 2–5. Male genitalia of *Agonotrechus* spp.; left lateral view (2, 4), and apical part of aedeagus, dorso-apical view (3, 5). —— 2–3. *A. campanulatus* S. Uéno, sp. nov., from the Deo O Quy Ho in the Sa Pa area. —— 4–5. *A. nomurai* S. Uéno, sp. nov., from Ban Xa Lenh in Hoa Binh Province.

head, much wider than long, widest at about three-fifths from base, and much more strongly contracted at apex than at base; PW/HW 1.33 in the holotype (H), 1.30 in the paratype (P), PW/PL 1.42 in H, 1.39 in P, PW/PA 1.74 in H, 1.67 in P, PW/PB 1.09 in H, 1.11 in P, PB/PA 1.60 in H, 1.50 in P; sides more widely and evenly arcuate in front than in *A. campanulatus*, more slightly sinuate behind, and more widely reflexed in basal three-fifths, particularly at the postangular parts; other pronotal features as in *A. campanulatus*. Elytra as in *A. campanulatus*, but somewhat ampler at the apical parts and less deeply striate; EW/PW 1.68 in H, 1.74 in P, EL/PL 3.41 in H, 3.42 in P, EL/EW 1.43 in H, 1.42 in P; stria 7 shallower than in *A. campanulatus* though nearly entire, more sparsely punctate; intervals 5 and 6 less prominent with the exception of basal carina; stria 3 with two setiferous dorsal pores at about basal 1/7 and slightly before the middle; preapical pore absent. Ventral surface and legs as



Figs. 6–7. Male genitalia of *Agonotrechus amplicollis* S. Uéno, sp. nov., from the Deo Tram Ton in the Sa Pa area; left lateral view (6), and apical part of aedeagus, dorso-apical view (7).

in *A. campanulatus*.

Male genital organ exceedingly small and rather poorly sclerotized. Aedeagus short, only a little less than one-sixth as long as elytra, moderately compressed, gradually dilated towards apex, only slightly arcuate before middle but moderately so in apical half, with very short apical lobe which is slightly curved ventrad and widely rounded at the apex; basal part small, hardly curved ventrad and hardly emarginate at the sides of basal orifice, with small sagittal aileron; ventral margin widely emarginate in profile. Inner sac armed with a large copulatory piece, which is about two-fifths as long as aedeagus, wholly covered with scales on the surface, and produced into a short process at the apex. Styles as in *A. campanulatus*, each bearing three or four long setae at the apex.

Female unknown.

*Type series.* Holotype: ♂, paratype: 1 ♂, 20–VI–1997, S. Nomura leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Ban Xa Lenh, 890 m in altitude, in Xa Pa Co of Huyen Mai Chau, Hoa Binh Province, northern Vietnam.

*Notes.* Though very closely similar to *A. campanulatus*, the Ban Xa Lenh specimens recorded above are regarded as belonging to a full species, not as a geographical race of the latter, mainly in view of the decisive difference in the cephalic configuration and in the male genitalic features. Besides, its habitat lies in a tropical rain forest, not in a deciduous temperate forest at high altitude, and is not only distant

for more than 200 km from that of the latter species but widely separated from it by the valley of the Song Da, the largest branch of the Song Hong River.

On the calcareous hills stretching at the right side of the Song Da River, there remain small patches of natural rain forests along the Route 6. One of them on the borders of Hoa Binh and Son La Provinces, or between the small villages Xa Lenh and Truong Yen, still harbours an incredibly rich fauna of mainly tropical insects. It is therefore most unexpected that the forest also harbours two species of trechine beetles, *Agonotrechus nomurai* and an undescribed species of *Paratrechiotes*. Both the trechines were met with only once by Nomura early in the summer of 1979 on the thicketed slope of a small doline covered with tall evergreen trees, by sifting moist dead leaves accumulated among mossy limestone outcrops. I visited the forest several times, and on June 8–10, 1999, made very careful searches at the exact spot of the type habitat to which I was guided by Nomura himself. Very strangely, however, all our efforts were not repaid, even for reobtaining the *Paratrechiotes* which had been much commoner than *Agonotrechus* only two years before.

***Agonotrechus amplicollis* S. Uéno, sp. nov.**

(Figs. 6–8)

Length: 4.80 mm (from apical margin of clypeus to apices of elytra).

Discriminated at first sight from all the other congeners by its peculiar facies, with large barrel-shaped prothorax and broad guttiform elytra regularly narrowed apicad from basal third.

Relatively small species of broad facies with small head and fully developed hind wings. Colour dark reddish brown, shiny, infuscated on the disc of pronotum and in the apical areas of elytra; elytra weakly iridescent; palpi, antennae, venter of hind body, and legs light brown, more or less lighter than dorsum.

Head small, nearly 1.5 times as wide as long, widest at about three-fifths from clypeal suture, and more strongly contracted anteriad than posteriad, with large eyes and fairly wide neck; dorsum depressed, with frontal furrows obtusely subangulate between the levels of supraorbital pores, deeply impressed and almost straightly divergent anteriad, and very widely and almost straightly divergent posteriad towards neck constriction; both frons and supraorbital areas gently convex, the former with vague transverse striations, the latter with a distinct foveole at the base of each anterior supraorbital seta; microsculpture mostly formed by fine transverse lines, though partially obliterated; eyes relatively small though convex, their contours continuing posteriorly to neck constriction through genae, which are oblique and two-ninths as long as eyes; neck fairly short and wide, with the anterior constriction distinctly marked at the sides; labrum transverse, with the anterior margin slightly emarginate; mandibles stout, briefly arcuate inwards at the acute apices; mental tooth porrect and simple, submentum sexsetose; palpi short, with penultimate segments gently dilated

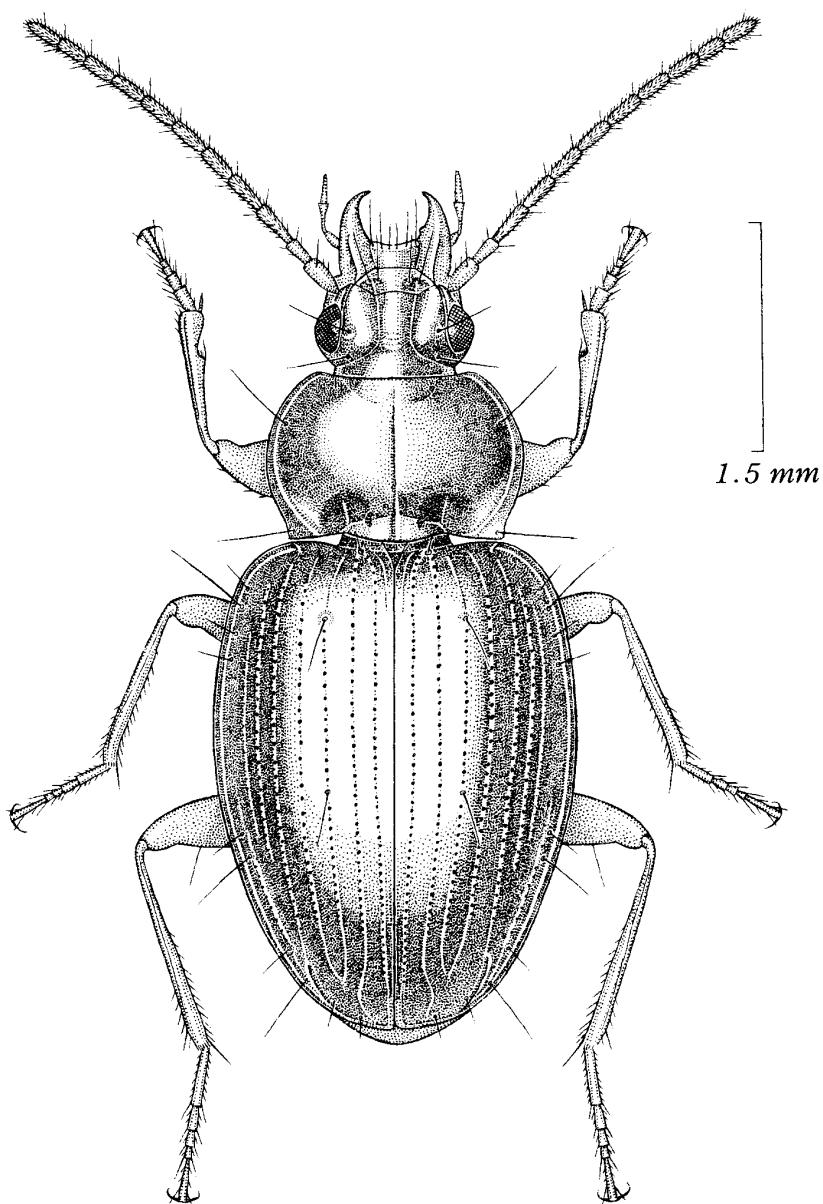


Fig. 8. *Agonotrechus amplicollis* S. Uéno, sp. nov., ♂, from the Deo Tram Ton in the Sa Pa area.

towards apices; antennae short but fairly thin, reaching basal two-sevenths of elytra in ♂, segment 2 the shortest, about two-thirds as long as segment 3 which is as long as 4 or 5, segments 6–8 nearly equal in length to one another, slightly shorter than 5 and slightly longer than 9 or 10, each cylindrical and a little less than three times as long as wide, terminal segment slightly longer than segment 3, longer but narrower than scape.

Pronotum large and ample, transverse barrel-shaped, much wider than head, much wider than long, widest at the middle, and more strongly contracted at apex than at base; PW/HW 1.59, PW/PL 1.50, PW/PA 1.79, PW/PB 1.19; sides widely re-

flexed except near front angles, gently arcuate in front, moderately and widely so at middle, and slightly and briefly sinuate just before hind angles; reflexed side borders widened posteriad, forming on each side a widely explanate and reflexed postangular part; apex nearly straight at middle, obviously narrower than base, PB/PA 1.51, with front angles rounded and only very slightly advanced; base slightly arcuate at middle, slightly but widely oblique posteriad on each side, and with rectangular hind angles; dorsum well convex, steeply declivous at the antero-lateral parts, with vague, irregularly transverse striations on the disc; microsculpture consisting of fine transverse lines, though largely evanescent; median line distinct, deepened in basal area; apical transverse impression mal-defined; basal transverse impression linear, with a distinct foveole on each side of median line, and mostly included in large semicircular basal foveae; no postangular carinae; basal area narrow and smooth.

Elytra guttiform rather than ovate, much wider than prothorax, widest at about three-tenths from bases, and more gradually but regularly narrowed towards apices than towards bases, with broad and ample basal and narrow apical parts; EW/PW 1.44, EL/PL 2.97, EL/EW 1.37; shoulders advanced, with prehumeral borders recurved; sides rather widely bordered throughout, moderately arcuate in front, feebly so behind the widest part, and narrowly and conjointly rounded at apices, each without appreciable preapical emargination; dorsum convex though lightly depressed on the disc, steeply declivous at the basal and lateral parts but rather gently so at the apical part; microsculpture consisting of fine transverse lines though largely evanescent; striae almost entire and distinctly punctate, deeply impressed on the disc but becoming shallower at the side, stria 2 not forming apical anastomosis with 3 but outwardly arcuate in apical portion, 3 and 4 anastomosing at apices, 4 and 5 inwardly curved near base though not deepened, 6 obsolete in basal portion, 7 fragmentary but indicated by almost entire row of punctures, 8 deeply impressed behind the middle set of marginal umbilicate pores but indicated by only a sparse row of minute punctures in proximal part; scutellar striole fairly long, deeply impressed and impunctate; apical striole deep, moderately curved, free at the anterior end though almost joining stria 5; intervals gently convex on the disc, less so at the side except interval 7 which is gently convex in proximal half, basal portion of interval 6 moderately convex but not forming distinct basal carina; apical carina prominent; stria 3 with two setiferous dorsal pores at 2/15 and 4/9 from base, respectively; preapical pore absent; marginal umbilicate pores regular.

Ventral surface smooth; all the setae on abdominal sternites normal. Legs rather short but fairly slender; protibiae straight, moderately dilated towards apices; tarsi relatively thick, tarsomere 1 longer than tarsomeres 2–3 together but shorter than tarsomeres 2–4 together in both meso- and metatarsi; in ♂, protarsomeres 1 and 2 rather widely dilated and stoutly produced inwards at apices.

Male genital organ small and poorly sclerotized. Aedeagus about one-fifth as long as elytra, tubular, not dilated towards apex, and more strongly arcuate in apical

half than in proximal half, with small and short basal part, which is rather abruptly curved ventrad and hardly emarginate at the sides of basal orifice; sagittal aileron present though very small; apical lobe short and somewhat reflexed, with the tip simply rounded in lateral view, somewhat asymmetrical and very obtusely subangulate at the extremity in dorsal view; ventral margin widely emarginate in profile, more deeply behind middle than before. Inner sac armed with a large spatulate copulatory piece, which is about two-fifths as long as aedeagus, covered with minute scales and pointed at the apex. Styles slender, with the apical parts feebly arcuate ventrad, left style obviously longer than the right, each bearing four setae of various lengths at the apex.

Female unknown.

*Type specimen.* Holotype: ♂, 10-X-1994, Y. Nishikawa leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Deo Tram Ton (also called Deo Hoang), 1,840 m in altitude, on the Hoang Lien Son Mountains, in Lao Cai Province, northern Vietnam.

*Notes.* This distinctive new species is strikingly different from the preceding two both in its facies and in the configuration of its male genitalia, but seems to belong to the *campanulatus* group mainly in view of the peculiar elytral chaetotaxy. It is worth noting that the male genitalia of *A. amplicollis* are typical for a member of *Agonotrechus*, not showing peculiar modification of aedeagal apical part as is found in *A. campanulatus* and *A. nomurai*. In general appearance, this new species somewhat resembles the macropterous form of *A. horni* Jedlicka (1932, p. 82; Uéno, 1980, p. 108, figs. 1–3) from Taiwan, but definitely differs from it in the absence of the preapical pore on the elytra and in the configuration of the male genitalia.

The single known specimen of this interesting new species was found from beneath plant residues deposited at the side of a large rotten log lying in a small temporary bog, which was formed by flood water of a narrow stream flowing down a steep slope densely covered with deciduous and evergreen broadleaved trees. I was there when Nishikawa collected the specimen, and we searched for additional material during the following two days without success. Since then, this small bog, sometimes completely dried up, has been visited many times by the members of our expeditions, who have made every possible effort to find out new material, but the trechine beetle has never reappeared until now.

#### *Agonotrechus vina* S. Uéno, sp. nov.

(Fig. 9)

Length: 4.95 mm (from apical margin of clypeus to apices of elytra).

Probably related to *A. birmanicus* (H. W. Bates) (1892, p. 297; Jeannel, 1923, p. 429, 1928, p. 87, figs. 1319–1323) and *A. yunnanus* S. Uéno (1999, p. 215, figs. 1–3),

but readily distinguished from the former by the differently shaped head and prothorax, of which the former is shorter and more transverse and the latter is more strongly contracted at the base and much less widely reflexed at the sides, with the side margins more strongly arcuate in front and hardly sinuate before the hind angles, and obviously shallower striae on the elytra, particularly at the sides. From the latter species, it differs in the absence of the posterior setiferous dorsal pore on the elytra beside the differences in the configuration of head and prothorax and in the depth of elytral striae. From *A. campanulatus* S. Uéno, which occurs sympatrically with this in a very narrow area, *A. vina* can be discriminated at first sight by the differently shaped prothorax, the absence of the posterior dorsal pore on the elytra, and the presence of the preapical pore at the apical part of the 2nd elytral stria.

Relatively small species of fairly thickset body form with rather short appendages; inner wings fully developed. Colour dark brown, infuscated between eyes and large parts of pronotum and elytra, though the sutural intervals and reflexed side margins of elytra are reddish, shiny, and weakly iridescent on elytra; buccal appendages other than mandibles, antennae, venter of hind body, and legs somewhat reddish brown, more or less lighter than the rest of body.

Head transverse, a little more than 1.3 times as wide as long, widest a little behind the middle, and almost equally narrowed in front and behind; dorsum depressed, with gently convex frons and supraorbital areas, the latter bearing two pair of supraorbital setae on lines divergent posteriorly, the anterior one of which arise from distinct foveoles; frontal furrows deeply impressed throughout, obtusely subangulate at middle and widely divergent in front and behind; microsculpture distinct, mostly consisting of fine transverse meshes; eyes large and convex, their contours continuing posteriorly to neck constriction through genae, which are less than one-fourth as long as eyes and hardly convex; neck fairly wide, with the anterior constriction sharply marked at the sides; labrum shallowly emarginate at the apex though its median part is widely straight; mandibles stout, briefly hooked at the acute apices; mental tooth small and simple; palpi short though fairly slender; antennae short, reaching basal third of elytra, segment 2 the shortest, about three-fourths as long as segment 3, which is as long as 5 and slightly shorter than 4, segments 6–9 each subequal in length to 5, subcylindrical and a little more than three times as long as wide, segment 10 slightly shorter than 9, terminal segment the longest though obviously narrower than scape.

Pronotum transverse subcordate, wider than head, wider than long in a similar proportion, widest at about two-thirds from base, and more gradually narrowed posteriad than anteriad; PW/HW 1.31, PW/PL 1.33, PW/PA 1.72, PW/PB 1.20; sides strongly rounded at front angles and moderately arcuate before the widest part, but nearly straight behind middle and hardly sinuate before hind angles; side borders rather narrow before the middle but posteriorly widened in basal third, forming widely explanate and reflexed postangular parts; apex narrow, nearly straight, with front

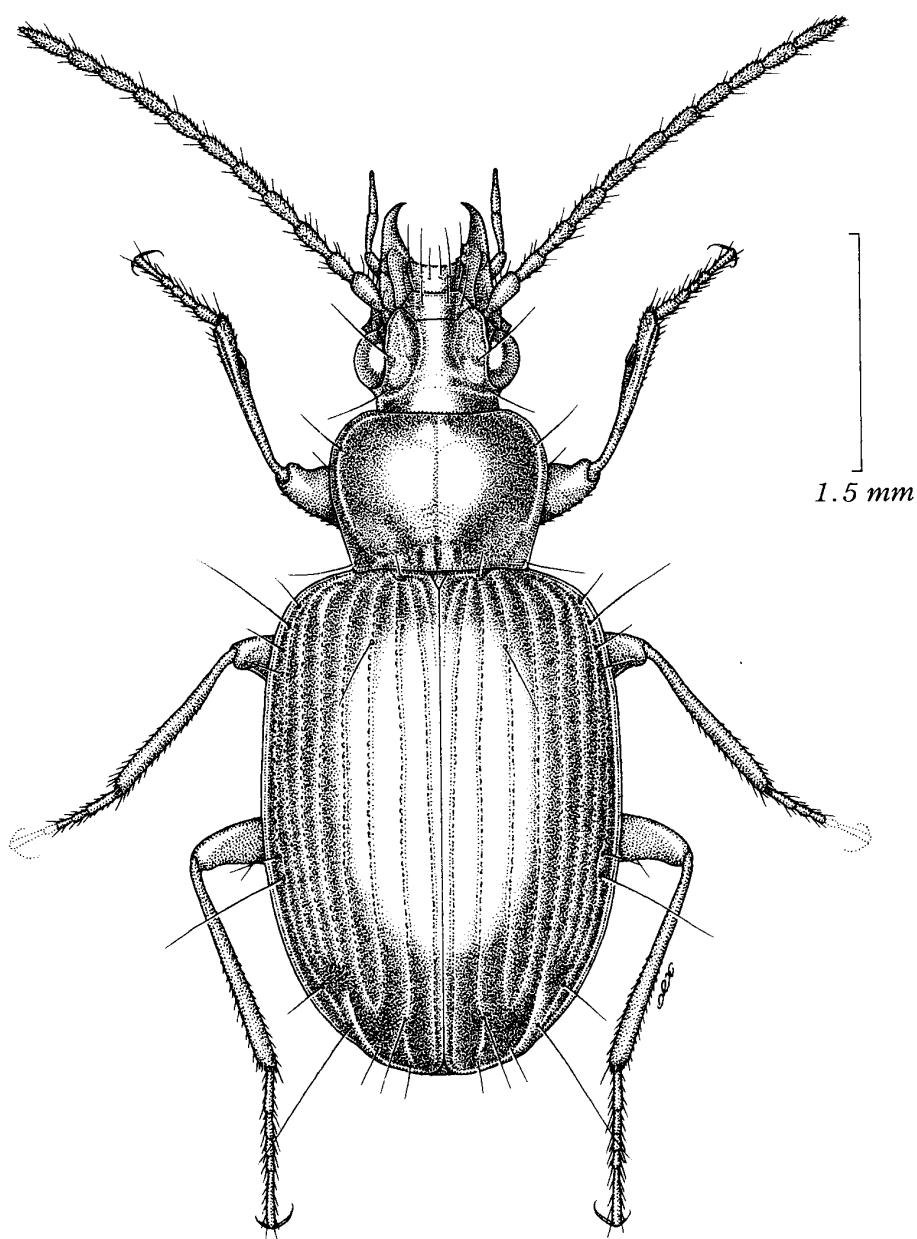


Fig. 9. *Agonotrechus vina* S. Uéno, sp. nov., ♀, from the Deo O Quy Ho in the Sa Pa area.

angles almost rounded off and only very slightly advanced; base relatively narrow though still obviously wider than apex, PB/PA 1.43, nearly straight except for postangular portions which are briefly oblique; hind angles obtuse, produced neither outwards nor backwards; dorsum convex though depressed on the disc, with deep median line extending from apex to base; apical transverse impression obsolete; basal transverse impression mal-defined, included in large basal foveae outside shallow foveole on each side of median line; basal foveae deep, smooth at the bottom; basal area small and nearly smooth; microsculpture consisting of fine transverse lines

though partially obliterated.

Elytra ovate, much wider than prothorax, widest at about middle and nearly parallel-sided anteriad; EW/PW 1.69, EL/PL 3.24, EL/EW 1.44; shoulders distinct though rounded together with prehumeral borders whose innermost portions are nearly perpendicular to the mid-line; sides narrowly bordered throughout, very feebly arcuate behind shoulders, almost straight before middle, then gently arcuate to slight preapical emargination, and rather narrowly and almost conjointly rounded at apices, which form a very small re-entrant angle at suture; dorsum convex though depressed on each side of suture before middle, with steep basal and rather gentle apical declivities; microsculpture formed by fine transverse lines though partially evanescent; striae rather deeply impressed and finely but distinctly punctate on the disc, becoming much shallower at the side, striae 1–6 entire, 2 not forming apical anastomosis with 3 but outwardly arcuate at the apical part, 5 inwardly curved and deepened at the basal part, 7 fragmentary though indicated by an entire row of punctures, 8 also indicated by a row of punctures before the middle set of marginal umbilicate pores but clearly impressed behind there; scutellar striole distinct, fairly long; apical striole deep, hardly curved anteriad, and joining or almost joining stria 5; intervals gently convex on the disc but completely flat at the side; apical carina conspicuous; stria 3 with only a single setiferous dorsal pore at 1/9 from base; preapical pore located on the apical declivity well behind the level of the terminus of apical striole, adjoining stria 2, and closer to suture than to apex; marginal umbilicate pores regular.

Ventral surface smooth; all the setae on abdominal sternites as usual. Legs rather short but not so stout; protibiae straight, gradually dilated towards apices; tarsi fairly thin, tarsomere 1 slightly longer than tarsomeres 2–3 together in mesotarsus, about as long as tarsomeres 2–4 together in metatarsus.

Male unknown.

*Type specimen.* Holotype: ♀, 8–X–1995, S. Nomura leg. Preserved in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Type locality.* Deo O Quy Ho, 1,750 m in altitude, in Sa Pa of Lao Cai Province, northern Vietnam.

*Notes.* It is difficult to determine the true affinity of this new species without examination of male characters, but its relationship with *A. birmanicus* cannot be denied in view of the similarity in the elytral chaetotaxy and in a combination of other minor features.

The single type specimen of *A. vina* available for the present study was obtained by sifting moist dead leaves and twigs accumulated in the side ditch of the road leading from O Quy Ho to Ban Khoang, about 7 km northwest of the town of Sa Pa in a bee-line. The exact spot of its habitat is not certain, since Nomura's collecting was made along the road for a distance of several hundred metres, but anyway it must have been somewhere within a very short distance from the spot where a pair of the type specimens of *A. campanulatus* had been obtained by myself only five months

earlier and under a very similar condition. Since then, this place has been examined by the members of four expeditions from 1997 to 1999. I myself participated in two of them and made very careful investigations focused on rediscovery of these *Agonotrechus*. Unfortunately, however, they were never reobtained, though a few specimens of a new apterous species of *Epaphiopsis* were regularly found out from the same habitat.

The specific epithet *vina* is the Vietnamese word meaning of Vietnam.

***Agonotrechus tonkinensis* Jedlicka, 1939**

(Fig. 10)

*Agonotrechus tonkinensis* Jedlicka, 1939, Neue Carab. Ostasien (XII), Praha, p. 1; type locality: Chapa [=Sa Pa]. —— Casale & Laneyrie, 1982, Mém. Biospéol., Moulis, 9, p. 115. —— Ueno, 1986, Bull. natn. Sci. Mus., Tokyo, (A), 12, pp. 90, 91.

Length: 7.00 mm (from apical margin of clypeus to apices of elytra) [7.70 mm including mandibles].

An unusually large species readily recognized on its gigantic size alone. Not unlike *A. wuyipeng* Deuve (1992, p. 172, figs. 2, 13) from Sichuan in many respects and probably belonging to the same lineage as the latter, but the colour is much darker, the elytral striae are much deeper particularly at the side, the proximal half of the 7th interval and the basal carina formed by the basal portion of the 6th interval are well convex and prominent, and the posterior setiferous dorsal pore on the 3rd elytral stria is lacking.

A very large black species of broad facies with small fore body and large ample elytra, being similar in general appearance to certain *Agonum* or *Platynus*; inner wings fully developed. Colour pitchy black, shiny, and weakly iridescent on elytra, reflexed side borders of prothorax and elytra as well as sternites partly reddish; palpi, antennae (becoming lighter towards apices), tibiae and tarsi dark reddish brown, more or less lighter than the rest of body; femora almost black.

Head small, transverse, more than 1.4 times as wide as long, widest a little behind the middle and almost equally narrowed in front and behind; dorsum depressed, with frons slightly and supraorbital areas moderately convex, the latter bearing two pair of supraorbital setae lying on subparallel lines, the anterior one of which arise from small foveoles; frontal furrows deeply impressed before the level of the posteri-or supraorbital pore, not angulate at middle, moderately divergent anteriad, and widely so posteriad; microsculpture fine, mostly consisting of irregularly transverse meshes; eyes very large and protrudent, their contours continuing posteriorly to neck constriction through genae, which are less than one-fifth as long as eyes and hardly convex; neck relatively narrow, with the anterior constriction sharply marked at the sides; labrum transverse, with straight apical margin; mandibles rather straight and fairly slender, briefly hooked at the acute apices; mental tooth porrect, narrowly truncated

at the tip; palpi fairly slender; antennae rather long, reaching basal two-fifths of elytra, segment 2 the shortest, about two-thirds as long as segment 3, which is slightly shorter than 4 or 5, segments 6–10 gradually decreasing in length towards apex, each cylindrical and about four times as long as wide, terminal segment about as long as segment 4, longer but obviously narrower than scape.

Pronotum transverse subcampanulate, evidently wider than head, much wider than long, widest at four-sevenths from base, and more strongly contracted at apex than at base; PW/HW 1.35, PW/PL 1.40, PW/PA 1.74, PW/PB 1.21; sides widely explanate and reflexed except near front angles, the reflexed borders widened posteriad in basal half, forming widely explanate postangular parts, moderately arcuate in front, less so behind middle, slightly sinuate at about basal sixth, and then gently convergent towards hind angles, which are obtuse and not produced; apex slightly arcuate, with front angles widely rounded; base relatively narrow, PB/PA 1.44, nearly straight at middle, and very slightly emarginate on each side; dorsum convex, with vague transverse striations on the disc, median line sharply impressed, deepened in basal area; microsculpture formed by fine transverse lines partially forming irregularly transverse meshes, though obliterated here and there; apical transverse impression linear, fairly deep; basal transverse impression with a small foveole on each side of median line and laterally included in basal foveae, which are deep and smooth, obliquely extending anteriad; basal area smooth.

Elytra ovate, ample, much wider than prothorax, widest at about middle, only slightly narrowed anteriad towards broad basal parts, and with ample apical parts; EW/PW 1.61, EL/PL 3.23, EL/EW 1.44; shoulders distinct though rounded, with prehumeral borders perpendicular to the mid-line; sides narrowly bordered throughout, nearly straight or very slightly arcuate behind shoulders, gently arcuate behind middle, and rather widely and almost conjointly rounded at apices, each with a slight preapical emargination; dorsum moderately convex, steeply declivous at the basal and lateral parts but rather gentle at the apical declivity, depressed in basal three-fifths of the disc; microsculpture formed by fine transverse lines though partially degenerated; striae entire, deeply impressed throughout and distinctly but rather finely punctate, stria 2 not forming apical anastomosis with 3 but outwardly arcuate in apical portion, striae 3 and 4 anastomosing at apices at the level of preapical pore, 5 deepened and inwardly curved at the basal portion, 6 also curved inwards at the basal portion and either forming or nearly forming apical anastomosis with 7, both deeply impressed throughout and somewhat deeper than inner ones, 8 equally impressed throughout but hardly punctate in apical half; scutellar striole clearly impressed, fairly long and impunctate; apical striole distinctly impressed, moderately curved, and continuing to stria 5; intervals gently convex on the disc, interval 1 becoming narrower behind middle, 6 forming an obtuse but distinct basal carina curved inwards at the basal portion, 7 convex throughout, almost concealing stria 8 in dorsal view, apical carina prominent; stria 3 with a single setiferous dorsal pore at about 1/8 from base; preapical

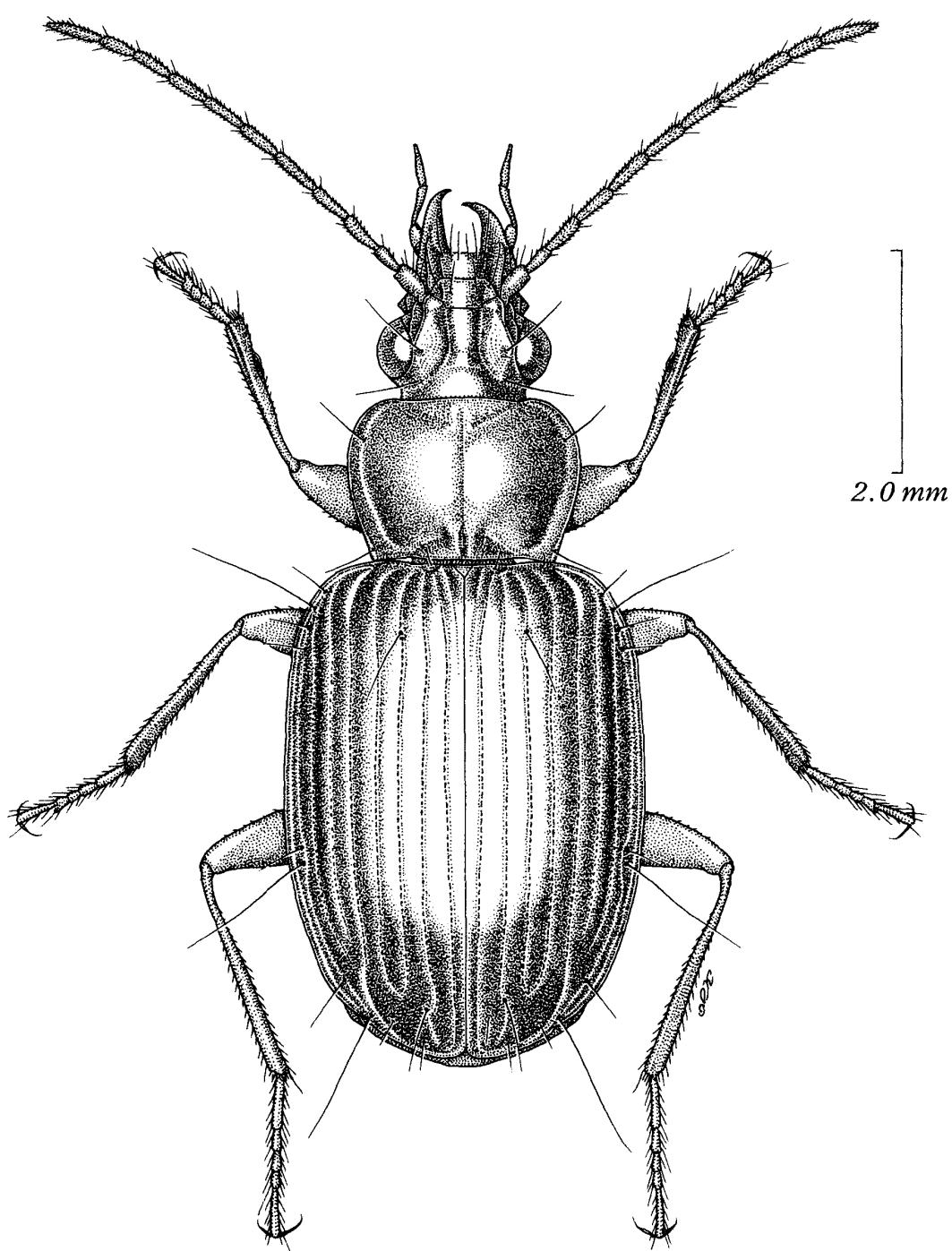


Fig. 10. *Agonotrechus tonkinensis* Jedlicka, ♀, from the Deo Tram Ton in the Sa Pa area.

pore located on the apical declivity well behind the level of the terminus of apical striole, adjoining stria 2, and closer to suture than to apex; marginal umbilicate pores regular.

Ventral surface smooth; all the setae on abdominal sternites normal. Legs fairly

long; protibiae straight, gradually dilated towards apices; tarsi fairly thin, tarsomere 1 about as long as tarsomeres 2–4 together in both meso- and metatarsi.

Male unknown.

*Specimen examined.* 1♀, Deo Tram Ton, 1,840 m in altitude, Hoang Lien Son Mts., Lao Cai Province, northern Vietnam, 29–VI–1997, S. Nomura leg. Deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

*Notes.* This remarkable species was previously known from a single specimen of unknown sex, which was said to measure 6.5 mm in the length of body. The specimen before me is still larger, measuring 7.7 mm from the tips of mandibles to the apices of elytra. This suggests that the holotype might be a male. It is most desirable that the whereabouts of the holotype could be found out so as to enable us to examine the male genitalia, which may clarify the true relationship between *A. tonkinensis* and *T. wuyipeng*. Anyway, Jedlička is right in considering that *A. tonkinensis* is characterized by the fact that “die Flügeldeckenstreifen sind bis zur Spitze tief” and “die inneren Zwischenräume sind mässig, die äusseren aber stark gewölbt.”

The single specimen recorded above was caught by a light trap set at the edge of a cliff looking down the deep forested valley at the upper course of the Muong Hau Ho, a tributary of the Song Hong River, about 7 km distant to the west-northwest from the town of Sa Pa. The spot is only about 50 m removed from the collecting site of the holotype of *A. amplicollis*, so that the two species can safely be regarded as sympatric. We have examined the bottom of the deep valley, but failed in finding any trechines there.

## References

Bates, H. W., 1892. Viaggio di Leonardo Fea in Birmania e regioni vicine. XLIV. List of the Carabidae. *Annli. Mus. civ. Stor. nat. Genova*, **32**: 265–428.

Casale, A., & R. Laneyrie, 1982. Trechodinae et Trechinae du monde. Tableau des sous-familles, tribus, séries phylétiques, genres, et catalogue général des espèces. *Mém. Biospéol., Moulis*, **9**: i+1–226 [with “Addenda et corrigenda jusqu’en 1982”, 6 pp. (1989)].

Deuve, Th., 1989. Nouveaux Trechinae du Népal et du Sichuan (Coleoptera, Trechidae). *Boll. Mus. reg. Sci. nat. Torino*, **7**: 315–319.

Deuve, Th., 1992. Contribution à la connaissance des Trechidae asiatiques (Coleoptera). *Bull. Soc. ent. Fr.*, **97**: 171–184.

Deuve, Th., 1995. Contribution à l’inventaire des Trechidae Trechinae de Chine et de Thaïlande [Coleoptera]. *Revue fr. Ent.*, (N. S.), **17**: 5–18.

Jeannel, R., 1923. Les Trechinae [Coleoptera, Carabidae] de la Région Orientale. *Ann. Mag. nat. Hist.*, (9), **12**: 393–435.

Jeannel, R., 1928. Monographie des Trechinae. Morphologie comparée et distribution géographique d’un groupe de Coléoptères. (Troisième livraison). Les Trechini cavernicoles. *Abeille, Paris*, **35**: 1–808.

Jedlička, A., 1932. Neue Carabiden aus Ost-Asien. Formosa (H. Sauter’s Formosa Ausbeute), Corea, China. *Čas. Čs. Spol. ent.*, **29**: 79–86.

Jedlička, A., 1939. Neue Carabiden aus Ostasien. (XII. Teil.). 8 pp. Private publication, Praha.

Uéno, S.-I., 1980. *Agonotrechus horni* (Coleoptera, Trechinae), a Taiwanese species showing an altitudinal wing dimorphism. *Bull. natn. Sci. Mus., Tokyo*, (A), **6**: 107–114.

Uéno, S.-I., 1986. A new *Agonotrechus* (Coleoptera, Trechinae) from Nepal, with notes on its congeners. *Bull. natn. Sci. Mus., Tokyo*, (A), **12**: 83–92.

Uéno, S.-I., 1998. The trechine beetles (Coleoptera, Trechinae) from the Zhongdian area in northwestern Yunnan mainly collected by Aleš Smetana. *Elytra, Tokyo*, **26**: 61–68.

Uéno, S.-I., 1999. Two new trechine beetles (Coleoptera, Trechinae) from the Gaoligong Shan Mountains in Yunnan, Southwest China. *Bull. natn. Sci. Mus., Tokyo*, (A), **25**: 215–223.